**UCCE**  
**Visually Enhanced Food Behavior Checklist (FBC)**\(^1, 2, 3\)  
**Instruction Guide**

The purpose of this tool is to document client behavior change by assessing client eating behaviors before and after the nutrition education lessons.

Instructions: Use this instruction guide when administering the Food Behavior Checklist tool to clients. Administer this tool on 2 occasions—at the registration time before the first lesson is taught and then after the last lesson is taught.

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</table>
| Q1. Do you eat fruits or vegetables as snacks? | Items pictured include 3 photos:  
- Far left- a woman sitting eating a whole apple  
- Top right- hands of a person holding carrots sticks  
- Bottom right- hands of a person holding grapes | Snacks are eating occasions which occur before, after, or between meals. If you do not eat fruits or vegetables, mark ‘No.’ | I ate apple pie, does that count? How about carrot cake? | No, in both cases  
Do fruit snacks count? | No if a ‘fruit snack’ is a fruit roll up or gummy fruit snacks. Yes if the ‘fruit snack’ is something like a piece of fruit. | Can they be in something like zucchini bread? | No |
| Q2. Do you drink fruit drinks, sport drinks or punch? | Items pictured include:  
- Sunny D  
- Hawaiian Punch  
- Propel Fitness Water | Count non-carbonated beverages other than 100% juices. Do not count soda. | Does this include Tampico? Hi-C? Capri-Sun? | Yes  
Does Power Aide count? | Yes |

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\(^2\) If you have additions for this guide, please contact Larissa Leavens at 530-754-8051 in the Nutrition Dept, UC Davis.  
\(^3\) Version UCCE.Food Behavior Checklist English 9/06
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<tr>
<td><strong>Q3. Did you have citrus fruit or citrus juice during the past week?</strong></td>
<td>Items pictured include:</td>
<td>Citrus fruit includes orange, grapefruit, kumquat, lemon, lime, tangerine, tangelo, mandarin, and pomelo. Count juices of these citrus fruit, but not juice drinks, punches or aides. Do not count lemonade or limeade.</td>
<td>Does Hawaiian punch count? Does Sunny-D count?</td>
<td>No, only count 100% juice.</td>
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<td></td>
<td>• 100% orange juice in a carton</td>
<td></td>
<td>Are those in the picture the only type of citrus fruits?</td>
<td>No, citrus fruit includes oranges, grapefruit, kumquats, lemon, lime, tangerine, tangelo, and mandarins.</td>
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<tr>
<td></td>
<td>• frozen concentrated 100% orange juice</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>• 100% juice in a glass</td>
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<tr>
<td></td>
<td>• a can of mandarin oranges</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• a cut orange</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• a cut grapefruit</td>
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<td></td>
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<tr>
<td></td>
<td>• 2 tangerines</td>
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<td></td>
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<tr>
<td></td>
<td>• a pomelo</td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Items pictured include:</strong></td>
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<td></td>
<td><strong>Photograph</strong></td>
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<tr>
<td></td>
<td>Gatorade</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Country Time Lemonade</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Kool-Aid packets</td>
<td></td>
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<tr>
<td><strong>Q4. Do you drink regular soda?</strong></td>
<td>Items pictured include:</td>
<td>‘Regular’ soda means ‘non-diet’ soft drinks. Include sweetened carbonated drinks.</td>
<td>Does strawberry Shasta count?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>• canned soda (Black Cherry, Grape, Orange, Cherry Cola, Grapefruit, and Cola)</td>
<td></td>
<td>What about caffeine free coke?</td>
<td>Yes, as long as it is not diet.</td>
</tr>
<tr>
<td></td>
<td>• soda in a cup (Coke and Pepsi)</td>
<td></td>
<td>Does diet count?</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>• 2 liter bottles of soda (Dr. Pepper, 7-Up, Sunkist Orange Soda, and Mountain Dew)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Q5. Did you drink milk or use milk on cereal during the past week?</strong></td>
<td>Items pictured include:</td>
<td>This is a milk question (per our validation study). Count all forms of milk such as whole, 1%, 2%, skim or nonfat.</td>
<td>Does chocolate milk count? Does strawberry milk count?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>• a glass of milk</td>
<td></td>
<td>Does a milk shake</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>• a bowl of Cheerios with milk labeled</td>
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<td></td>
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### FBC Questions

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| ![Cold](cold.png) ![Hot](hot.png) | • ‘cold’  
  - a bowl of hot oatmeal with milk labeled ‘hot’ | fortified soy.  
 Note: calcium content for commercially prepared:  
 - non-fortified soy=95mg  
 - fortified soy=200-300mg  
 - non-fortified  
 - rice milk=15 mg/<1%  
 - milk=286mg/29%  
 Count only milk you put on your cereal or drink from a container. | What about the milk in my latte/coffee?  
 Does rice milk count?  
 Does almond milk count?  
 Does hazelnut milk count?  
 Does multigrain milk count?  
 Does calcium fortified orange juice count?  
 Does cheese, yogurt, or cottage cheese count?  
 Does powdered milk count? | Count the milk if there is more milk than coffee in your cup.  
 No  
 No  
 Yes |

### Q6. Fruit: How much do you eat each day?

| Items pictured include 4 sets of cups:  
| • **First cup** – empty 1 cup measuring cup over the circle answer ‘none’  
| • **Second cup** – a 1 cup measuring cup half full with canned fruit cocktail over the circle answer ‘½ cup’  
| • **Third cup** – a full 1 cup measuring cup with grapes, sliced strawberries, and sliced banana over the circle answer ‘1 cup’  
| • **Fourth set of cups** – two full 1 cup measuring cups over the circle answer ‘2 cups’  
  - one has grapes, sliced strawberries, and sliced banana.  
  - the second has cut watermelon, cut mango, and an orange | This question is about total quantity of fruit. This includes all fresh, frozen, canned, and dried fruits and fruit juices. In general, 1 cup of fruit or 100% fruit juice, or ½ cup of dried fruit can be considered as 1 cup of fruit.  
 Examples:  
 - 1 piece of fruit counts as 1 cup  
 - 1 cup chopped watermelon counts as 1 cup of fruit  
 - 1 cup of 100% orange juice counts as 1 cup of fruit  
 - ½ cup of raisins counts 1 cup of fruit  
 If you do not eat fruit, mark | Does frozen fruit count?  
 Does cran-raspberry juice count?  
 Does dried fruit count?  
 Do fruit snacks count? | Yes  
 Only if it is 100% juice with no added sugar.  
 Yes, remember that ½ cup of dried fruit should be considered as 1 cup of fruit.  
 No if a ‘fruit snack’ is a fruit roll up or gummy fruit snacks. Yes if the ‘fruit snack’ is something like a piece of fruit. |
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|               | ![Image](image1.png) | **Fifth set of cups** – three full 1 cup measuring cups over the circle answer ‘3 cups or more.’  
- the first cup has cut watermelon and cut mango  
- the second cup grapes, sliced strawberries, and sliced banana  
- the third cup has orange and apple slices | I eat less than ½ a cup. What do I mark? | Mark the answer that is closest to the amount you eat. |
| Q7. Vegetables: How much do you eat each day? | Items pictured include 4 sets of cups:  
- **First cup** – empty 1 cup measuring cup over the circle answer ‘none’  
- **Second cup** – a full 1 cup measuring cup with sticks of carrot, celery, green bell pepper and cucumber over the circle answer ‘1 cup’  
- **Third set of cups** – two full 1 cup measuring cups over the circle answer ‘2 cups’  
  - one has cooked corn kernels, peas, and broccoli  
  - the second has raw vegetables including torn romaine lettuce, cut tomatoes, cut cucumber, and sliced red onion.  
- **Fourth set of cups** – three full 1 cup measuring cups over the circle answer ‘3 cups or more’  
  - the first cup has sticks of carrot, celery, green bell pepper and cucumber  
  - the second cup has cooked corn kernels, peas, and broccoli  
  - the third cup has raw vegetables including torn romaine lettuce, cut tomatoes, cut cucumber, and sliced red onion. | This question is about total quantity or amount of vegetables or vegetable juice. This includes all fresh, frozen, canned and dried vegetables and vegetable juices. In general, 1 cup of raw or cooked vegetables or vegetable juice, or 2 cups of raw leafy greens can be considered as 1 cup of vegetable.  
Examples:  
- 1 cup chopped broccoli counts as 1 cup of vegetable  
- 1 cup of V8 or tomato juice counts as 1 cup of vegetable  
- a salad with 2 cups of leafy greens counts as 1 cup of vegetable  
French fries count because they are potatoes. Potato chips do not count as a vegetable. If you do not eat vegetables, mark ‘No.’ | Does it have to be the vegetables in the picture?  
Do I count everything that was on my salad?  
Do they have to be fresh or can they be frozen or canned?  
Do French fries count? | No, any vegetable will count.  
Yes, count the total amount of the salad. But, remember the 2 cups of raw leafy greens can be considered 1 cup of vegetable.  
They can be fresh, frozen, canned, or vegetable juice.  
Yes, count French fries for questions 6, 9, 13, and 17. Do not count them for questions 18, 19, 20, and 21. |
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| Q8. Do you eat more than one kind of **fruit** each day? | Items pictured include 4 photos:  
- **Top left picture**- bag of frozen whole strawberries, a jar of applesauce, a pear, a nectarine, a peach, and a bowl of mixed fruit including dried plums (prunes), dried apricot, and dried nectarines  
- **Top right picture**- small carton of orange juice, a glass of orange juice, a can of frozen orange juice, a can of frozen grape juice, a grapefruit, a banana, a slice of watermelon, and a bowl of fresh strawberries and blueberries  
- **Bottom right**- a pomegranate, a persimmon, half of a honeydew melon, a cut papaya, a box of raisins, and a can of sliced pears  
- **Bottom left**- a can of fruit cocktail, a can of sliced pineapple, a whole cantaloupe melon, a whole mango, cut kiwi fruit, 2 whole plums, and a whole apple | This question is attempting to address variety. Different preparation methods of the same fruit do not count as variety (e.g. raw apple for snack, applesauce at dinner). Small amounts of fruit should not be counted (e.g. raisins in a cookie). | Does it count if I only had 2 grapes and ½ a banana? | No. The minimally accepted amount for each is: ¼ cup of raw or canned fruit, ¼ cup 100% fruit juice, 2 tablespoons dried fruit, or equivalent. |
| | | | Does juice count or does it have to be the piece of fruit? | Juice counts if it is 100% juice with no added sugar. |
| | | | If I eat canned fruit cocktail does it count as more than one fruit? | The minimally accepted amount for each is: ¼ cup of raw or canned fruit, ¼ cup 100% fruit juice, 2 tablespoons dried fruit, or equivalent. |
| Q9. Do you eat more than one kind of **vegetable** each day? | Items pictured include:  
- tomatoes  
- potato  
- cilantro  
- onion  
- squash  
- cucumber  
- peppers  
- radishes  
- avocado  
- zucchini  
- corn  
- carrots  
- chayote  
- cauliflower  
- spinach  
- canned tomatoes  
- canned salsa | This question is about “variety.” Different preparation methods of the same vegetable do not count as variety (e.g. coleslaw at lunch, cooked cabbage at dinner). Small amounts of vegetables should not be counted (e.g. the few carrot pieces in canned chicken noodle soup). If you do not eat vegetables, mark ‘No.’ | Do frozen vegetables count? | Yes |
<p>| | | | If I eat French fries and lettuce on my hamburger does that count? Do lettuce and onions on my taco count? | The minimally accepted amount for each item is: ¼ cup of chopped raw or cooked vegetables, ¼ cup 100% vegetable juice, ½ cup of leafy vegetables, |</p>
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| Q10. Do you drink milk? | Items pictured include:  
- **Far left**- 1 gallon jug of Crystal brand reduced fat milk, a glass of milk, and a carton of Crystal brand reduced fat milk  
- **Far right**- a grid with labels of various milks including: Vitamin D whole milk*, lactose free milk, fat free milk, low fat milk, chocolate low fat milk, butter milk, carnation fat free canned milk, and nonfat dry milk  
* Note: Other forms of cow’s milk are also fortified with Vitamin D. | This is a milk question, not a dairy or general calcium question (per our validation study). If you do not drink milk mark ‘No.’ | Do milk shakes count?  
Yes, if made from milk and ice cream.  
Does chocolate or strawberry milk count?  
Yes  
Does Soy or rice milk count?  
Yes, if calcium fortified.  
Does milk in my cereal count?  
Yes  
Does calcium fortified orange juice count?  
No  
Does cheese, yogurt, or cottage cheese count?  
No  
Does powdered milk count?  
Yes | Yes, the minimally accepted amount for each item is ¼ cup of chopped raw or cooked vegetables, ½ cup of leafy vegetables, or equivalent. |
| Q11. Do you take the skin off chicken? | Items pictured include:  
- hands of a person removing skin from a raw chicken drumstick | If you do not eat chicken, leave the answer blank. | Does it have to be before I cook it or can I do it after?  
Either way counts, as long as it is not eaten.  
What if I take it off and eat it?  
Mark ‘no’.  
What if I don’t eat any chicken?  
Leave the answer blank. |  |
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| **Q12. Did you have fish during the past week?** | Items pictured include 3 photos:  
- **Top left picture**- a plate with fish sticks and a box of fish sticks  
- **Top right picture**- a can of tuna and a tuna sandwich  
- **Bottom picture**- a large whole fish on a plate with lemons | Count fish (such as rock fish, snapper, salmon, canned or fresh tuna, etc.) prepared at home. Count any fish from a restaurant (such as fish & chips, etc.) Count shellfish (such as shrimp, prawns, etc.) | What if I only had a couple of bites?  
Does shrimp or crab count?  
Does imitation crab meat count? | Count it.  
Yes. Count both.  
Yes. Imitation crab meat is fish. |
| **Q13. Do you eat 2 or more vegetables at your main meal?** | Items pictured include 4 photos:  
- **Top left photo**- a plate with chili with cheese, salad (lettuce and tomato) with creamy dressing, and cooked cut carrots  
- **Top right photo**- a plate with an open hamburger (beef patty, bun, lettuce and tomato), coleslaw, and an ear of corn  
- **Bottom right photo**- a plate with a pork chop, cooked broccoli, a baked potato with sour cream and chives, and a bowl with a salad (lettuce, tomato, and a creamy dressing)  
- **Bottom left photo**- a plate with a piece of chicken, cooked spinach, marinated peppers and carrots, and a small plate with a biscuit | This question is about “variety.” French fries count as a vegetable because they are potatoes. Potato chips do not count as a vegetable. If you do not eat vegetables, mark ‘No.’ | How much do I have to eat of each kind to count?  
Do French fries count?  
If I have a bag of mixed frozen vegetables, does that count as more than 1 vegetable? | 2 or more.  
Yes, count French fries for questions 6, 9, 13, and 17. Do not count them for questions 18, 19, 20, and 21.  
Yes. |
| **Q14. Do you use this label when food shopping?** | Items pictures include 2 photos:  
- **Far left photo**- a nutrition facts label  
- **Far right photo**- a woman in the cereal aisle of the grocery store in front of boxes of Honey Bunches of Oats looking at the nutrition facts label of a box of Kellogg’s corn flakes | If you do not do the food shopping for your household, mark ‘No.’ | I look at it but don’t know what it means, what do I mark?  
Is it the same as looking at the front of the package?  
I look at it but price and preference determines my purchase. Should I | Mark ‘no’.  
No, it must be the nutrition facts label.  
Mark “yes.” |
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| Q15. Do you run out of food before the end of the month? | Items pictured include:  
- a nearly empty refrigerator with the following items inside:  
  - French’s yellow mustard  
  - a bottle of salad dressing  
  - a can of soda  
  - a bottle of ketchup  
  - 2 eggs  
  - an almost empty gallon jug of milk | This question is about food insecurity. Mark ‘Yes’ if you use emergency food resources or if some family members go without food.  
Mark ‘Yes’ is your run out of cash or food stamps to buy food. This may be a sensitive issue, but, if necessary, explain that this does not imply that client does not find something to feed children.  
Money for food could mean cash, credit, debit card, food stamps or WIC vouchers. | Does that mean that I don’t eat at all? | A ‘yes’ means that you run out of money, vouchers, or stamps to buy food before the end of the month.  
If someone else gives me food so I won’t be out of food, do I count that? | Yes, count as running out of food.  
My fridge may be empty but I usually have rice, beans, and canned foods in my cupboards. I am tired of these foods. Should I mark yes or no? | Mark ‘no’. |
| Q16. How would you rate your eating habits? | No picture | Think about your usual overall diet compared to what you have seen or heard is a healthy diet. | Does that mean how much do I eat? | Yes, part of healthy eating means eating normal amounts.  
Do I look at how often I eat? | Yes, part of healthy eating means eating food in normal amounts over the day.  
Is it based on if I eat healthy or not? | Yes |
Visually enhanced evaluation study
……..Enhancing usefulness of food behavior surveys for low-literate populations using visual information processing theories

CITATIONS

Name: University of California Cooperative Extension… Food Behavior Checklist
Focus: Diet Quality
Use: Primary prevention interventions focusing on chronic disease prevention
Date: February 16, 2009

PRINTED EVALUATION TOOLS READY FOR USE WITH ACCOMPANYING INSTRUCTION GUIDE

- Sylva K, Townsend MS, Martin A, Metz D. UCCE Food Behavior Checklist. University of California Cooperative Extension, 2006. (English, 16 items reflecting MyPyramid guidelines; Visually enhanced food behavior checklist in 4-page booklet designed for clients with limited literacy skills,


PRINTED INSTRUCTION GUIDE

REPORT TO FUNDER


RELATED ABSTRACTS (format, layout, visuals, readability)


- Townsend MS, Sylva K, Metz D, Davidson C. USDA’s MyPyramid: The journey from vegetable serving to cups with and without French fries. J Nutr Edu Behav. 2008 (40);P64:suppl 70.


THIS CHECKLIST IS AN EXTENSION OF PREVIOUS RESEARCH


• Townsend MS, Kaiser LL. Development of an evaluation tool to assess psychosocial indicators of fruit and vegetable intake for two federal programs. J Nutrition Education & Behavior. 2005;37:170-184. (For question #16).

• Townsend MS, Kaiser LL. Brief psychosocial fruit and vegetable tool is sensitive for United States Department of Agriculture’s nutrition education programs. J Am Diet Assoc. 2007;107:2120-2124.

MANUSCRIPT FOR CURRENT STUDY


Mst….updated 7-1-09
Food Behavior Checklist

These questions are about the ways you plan and fix food. Think about how you **usually** do things.

1. Do you eat fruits or vegetables as snacks?
   - no
   - yes, sometimes
   - yes, often
   - yes, everyday

2. Do you drink fruit drinks, sport drinks or punch?
   - no
   - yes, sometimes
   - yes, often
   - yes, everyday

3. Did you have citrus fruit or citrus juice during the past week?
   - no
   - yes

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13. Do you eat 2 or more vegetables at your main meal?
   - no
   - yes, sometimes
   - yes, often
   - yes, everyday

14. Do you use this label when food shopping?
   - no
   - yes, sometimes
   - yes, often
   - yes, always

15. Do you run out of food before the end of the month?
   - no
   - yes, sometimes
   - yes, often
   - yes, always

16. How would you rate your eating habits?
   - 1 poor
   - 2 fair
   - 3 good
   - 4 excellent

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* Use the accompanying instruction guide when administering this tool.

* Research and development for this illustrated diet quality checklist were a joint effort of University of California (UC) Cooperative Extension, the California Nutrition Network, UC Davis Design Program and UC Davis Nutrition Department. Authors: Kathryn Sylva, Marilyn Townsend, Anna Martin, Diane Meitz.

* The research for this diet quality instrument is available:

* The University of California does not discriminate in any of its policies, procedures, or practices. The University is an affirmative action/equal opportunity employer.

Funded by the University of California Cooperative Extension and UC Davis Design Program.
4. Fruit: How much do you eat each day?
   - none
   - 1/2 cup
   - 1 cup
   - 1 1/2 cups
   - 2 cups
   - 2 1/2 cups
   - 3 cups or more

5. Did you drink milk or use milk on cereal during the past week?
   - yes
   - no

6. Did you drink regular soda?
   - no
   - yes, sometimes
   - yes, often
   - yes, everyday

7. Vegetables: How much do you eat each day?
   - none
   - 1/2 cup
   - 1 cup
   - 1 1/2 cups
   - 2 cups
   - 2 1/2 cups
   - 3 cups or more

8. Do you eat more than one kind of fruit each day?
   - no
   - yes, sometimes
   - yes, often
   - yes, always

9. Do you eat more than one kind of vegetable each day?
   - no
   - yes, sometimes
   - yes, often
   - yes, always

10. Do you drink milk?
    - no
    - yes, sometimes
    - yes, often
    - yes, everyday

11. Do you take the skin off chicken?
    - no
    - yes, sometimes
    - yes, often
    - yes, always

12. Did you have fish during the past week?
    - yes
    - no